The Health Sector Assessment of the First U.S. National Assessment

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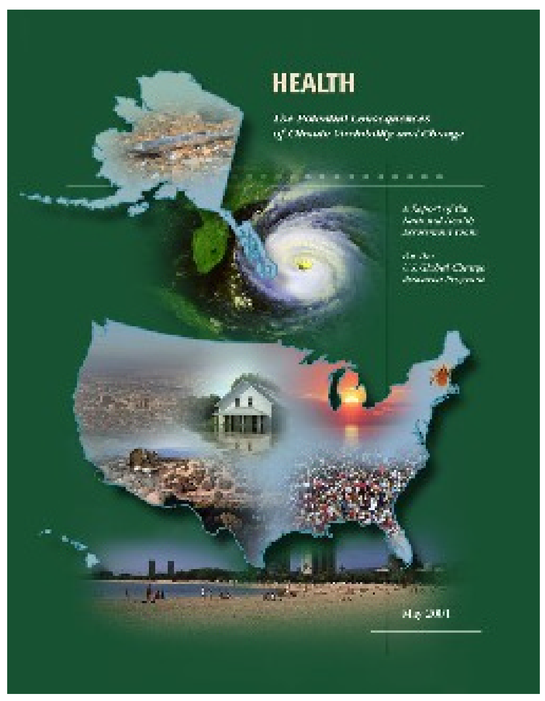
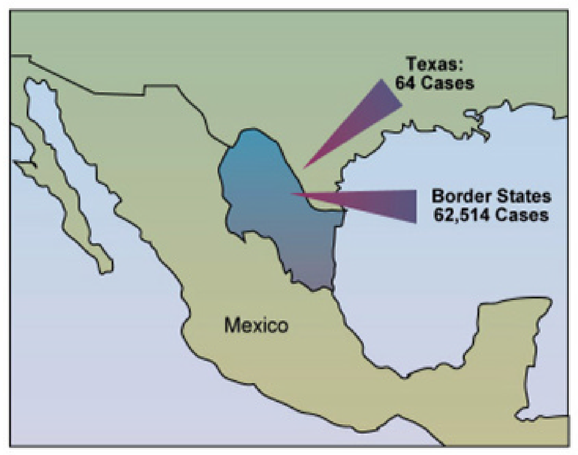
Introduction

EPA's Global Change Research Program sponsored the Health Sector Assessment (HSA) as part of the first U.S. National Assessment. The HSA process was designed to involve stakeholders and was co-lead by researchers at Johns Hopkins University and the U.S. CDC. The HSA relied on extensive reviews of the literature, expert judgment of the panel members, and some limited modeling of projected impacts of climate on health. Authors from a range of disciplines, representing a broad spectrum of views, were selected to ensure that a balanced assessment report was produced. The overall goal of the HSA was to address a set of four key questions:

1. What is the current status of the nation's health and what are current stresses on our health?
2. How might climate variability and change affect the country's health and existing or predicted stresses on health?
3. What is the country's capacity to adapt to climate change, for example, through modifications to the health infrastructure or by adopting specific adaptive measures?
4. What essential knowledge gaps must be filled to fully understand the possible impacts of climate variability and change on human health?

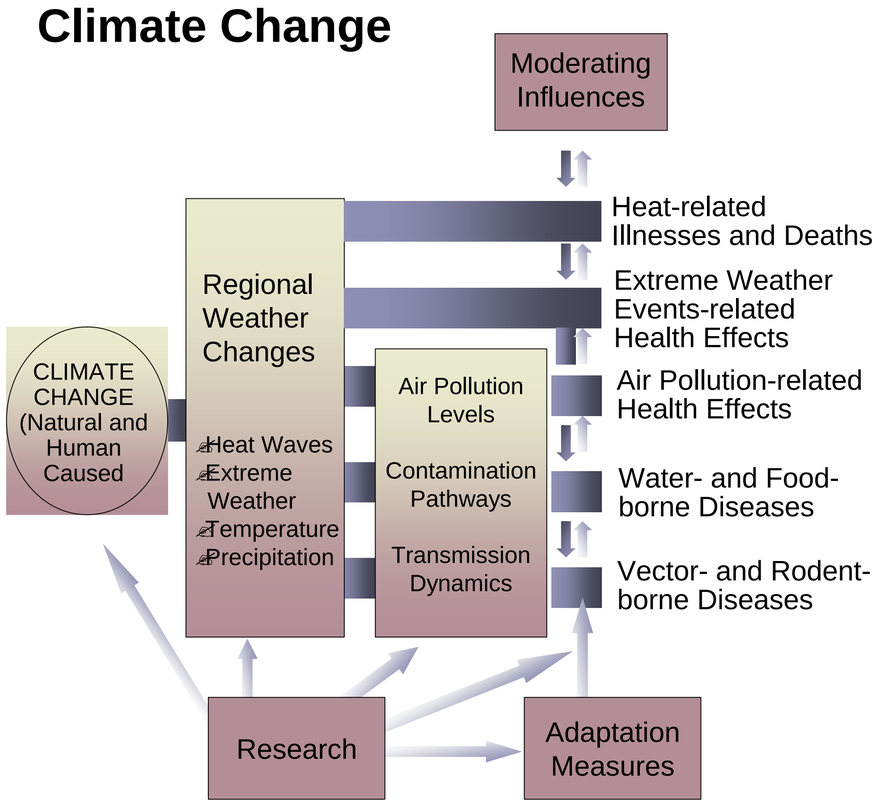


Reported Cases of Dengue

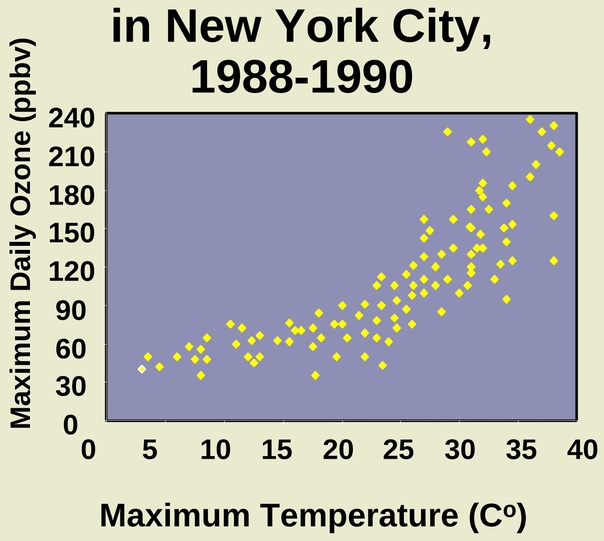


Dengue, a mosquito-borne viral disease, was once common in Texas – in 1922 there were an estimated 500,000 cases – and the mosquito that transmits it remains abundant. The striking contrast in the incidence of dengue in Texas versus three Mexican states that border Texas (64 cases vs. 62,415) for the 20-year period 1980-1999 shows the importance of factors other than temperature, such as public health infrastructure, use of air conditioning and window screens, in the transmission of vector-borne diseases.

Potential Health Effects of Climate Change



Ozone Concentrations in New York City, 1988-1990



Source: Sillman and Sampson, 1995

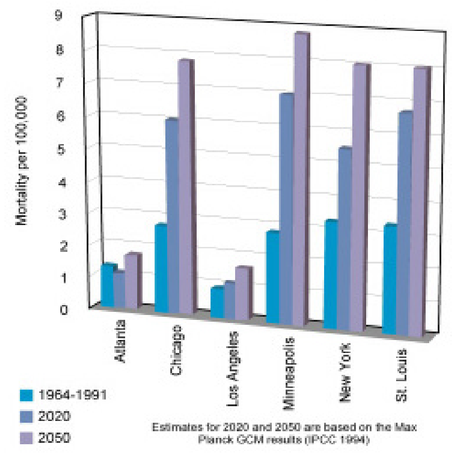
Projected higher temperatures across the US in the 21st century may increase the occurrence of high ozone concentrations, especially because extremely hot days frequently have stagnant air circulation patterns, although this will also depend on emissions of ozone precursors and meteorological factors. Ground-level ozone can exacerbate respiratory diseases and cause short-term reductions in lung function.

Heat-related Mortality

Deaths due to summer heat are projected to increase in US cities, in a study using several climate models. Mortality rates are shown for the Max Plank model, which lie roughly in the middle of the models examined. Because heat-related illness and death appear to be related to temperatures much hotter than those to which the population is accustomed, cities that experience extreme heat only infrequently appear to be at greatest risk.

Average Summer Mortality Rates

Attributed to Hot Weather Episodes



Source: Kalkstein and Greene, 1997